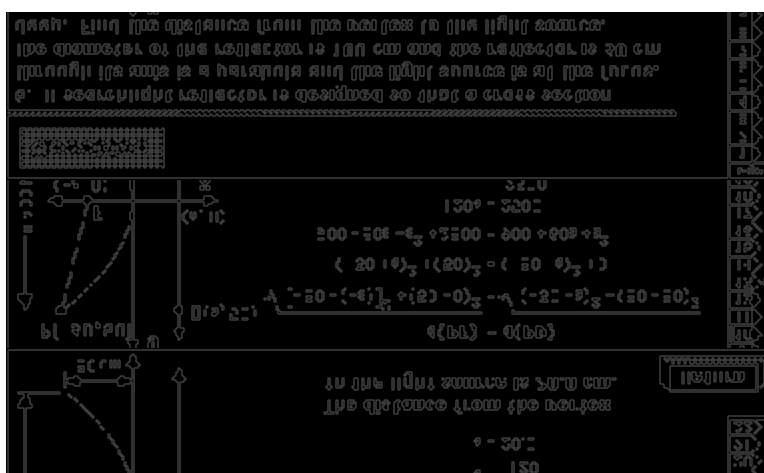
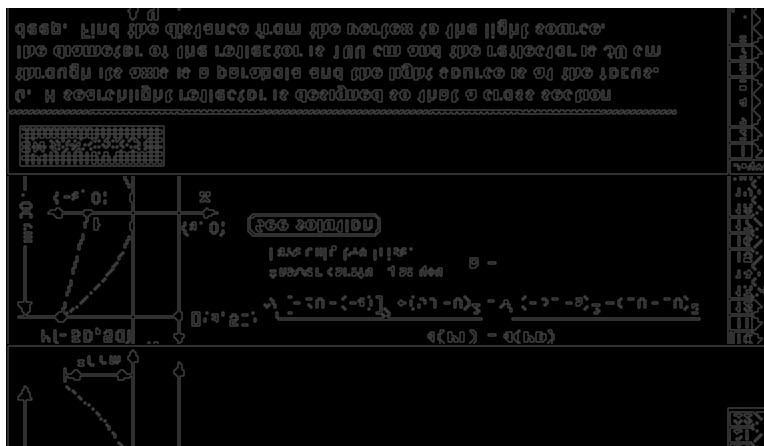
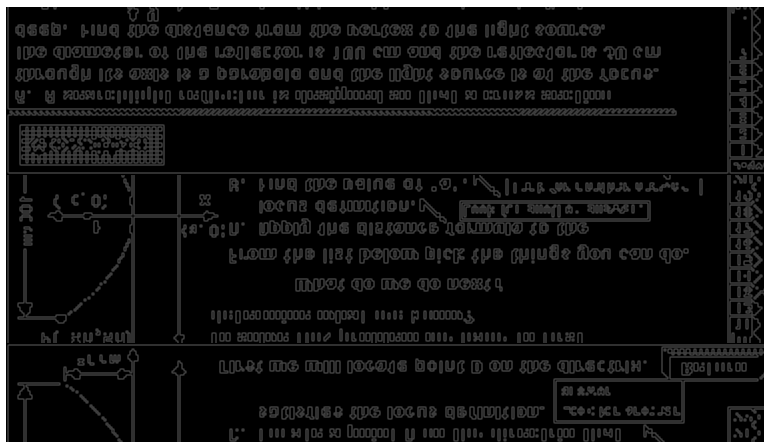
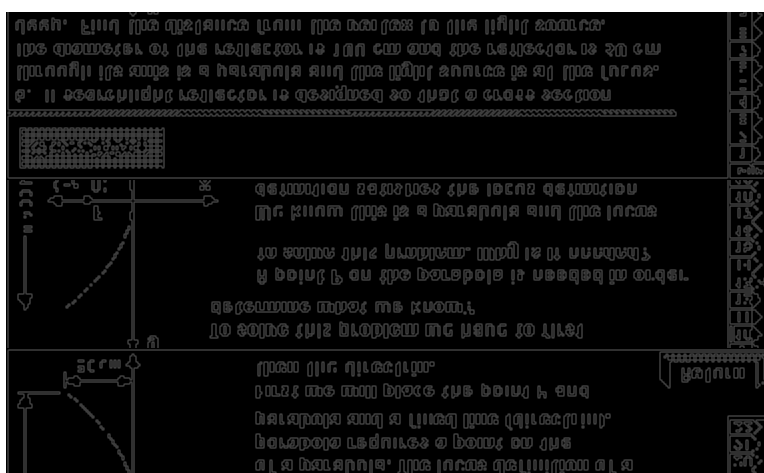
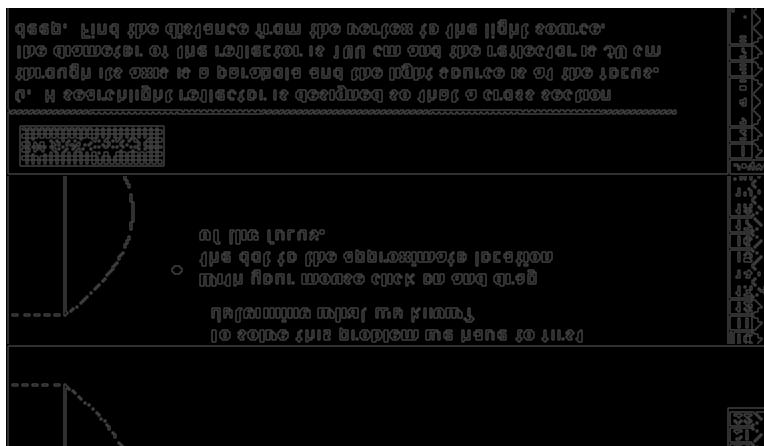
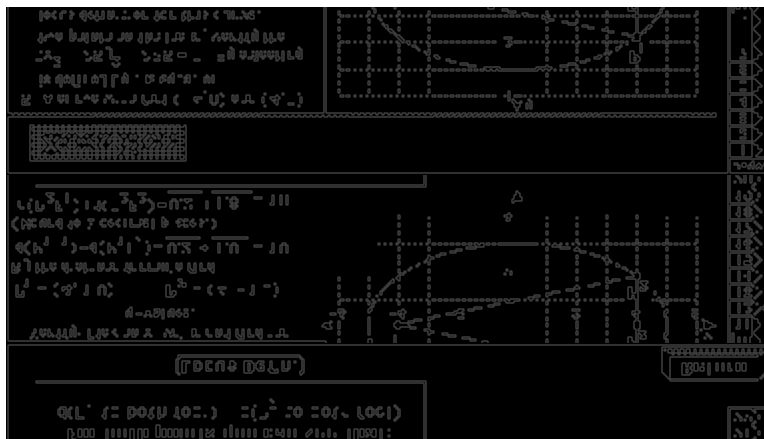
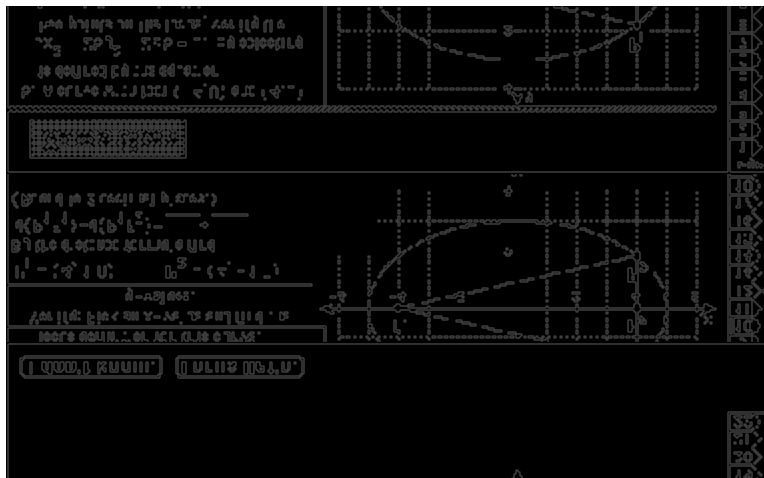


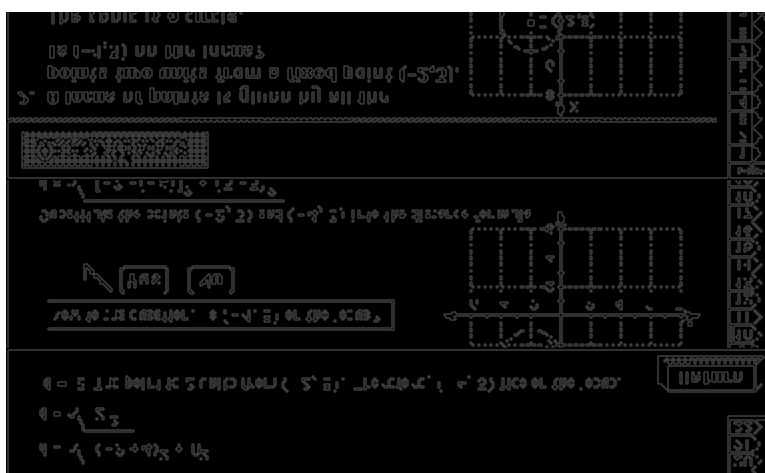
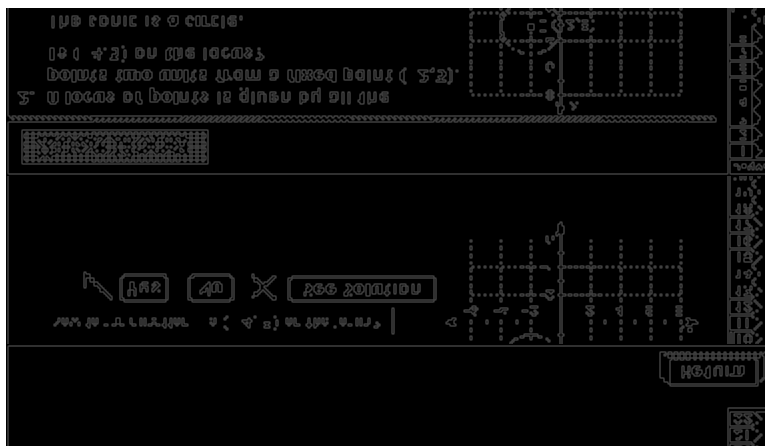
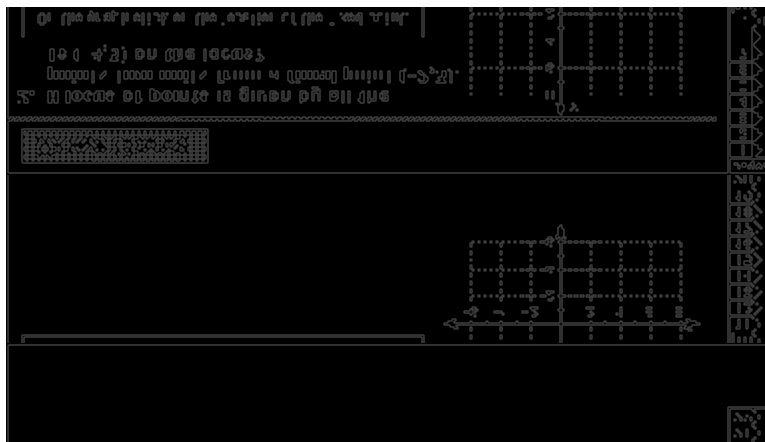
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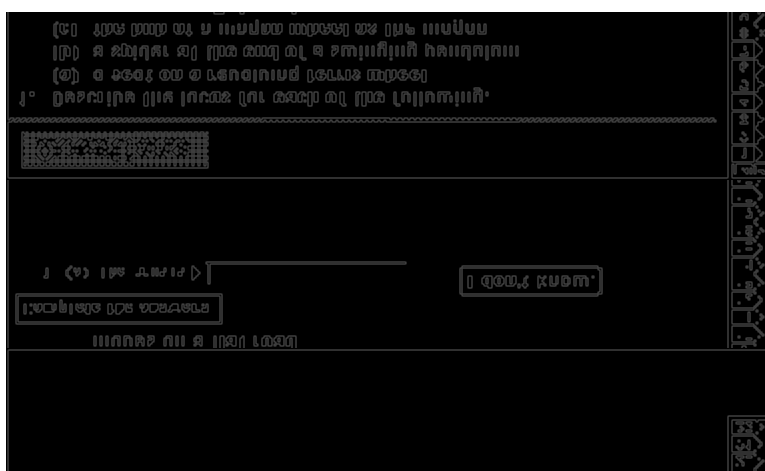
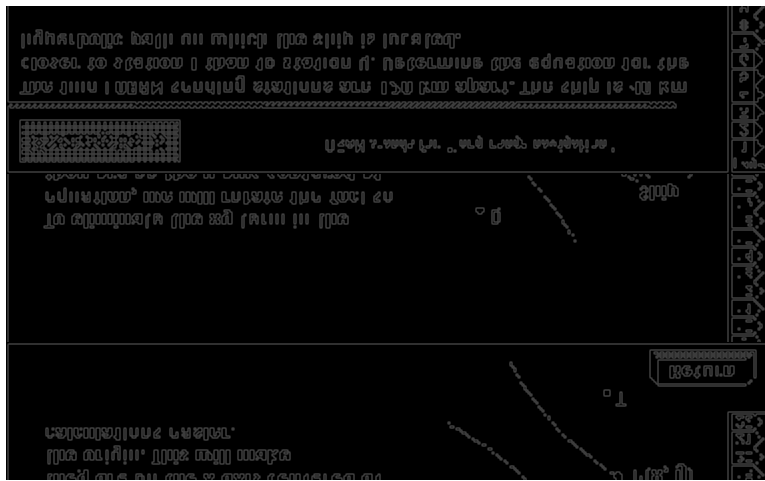




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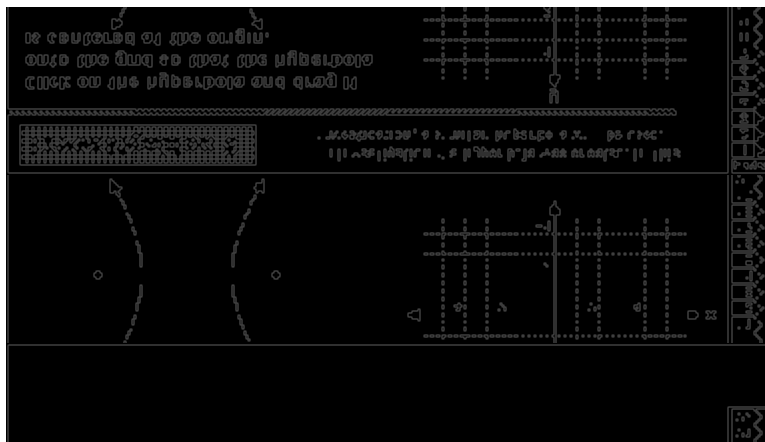
[illegible][illegible][illegible][illegible]

[illegible]







[illegible]

$\vec{a} = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, \vec{b} = \begin{pmatrix} 2 \\ 1 \\ 1 \end{pmatrix}$   
 $\vec{a} \cdot \vec{b} = 1 \cdot 2 + 2 \cdot 1 + 3 \cdot 1 = 8$   
 $|\vec{a}| = \sqrt{1^2 + 2^2 + 3^2} = \sqrt{14}$   
 $|\vec{b}| = \sqrt{2^2 + 1^2 + 1^2} = \sqrt{6}$   
 $\cos \alpha = \frac{\vec{a} \cdot \vec{b}}{|\vec{a}| |\vec{b}|} = \frac{8}{\sqrt{14} \sqrt{6}} = \frac{4}{\sqrt{21}}$   
 $\alpha = \arccos\left(\frac{4}{\sqrt{21}}\right) \approx 56.3^\circ$

$\vec{a} = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, \vec{b} = \begin{pmatrix} 2 \\ 1 \\ 1 \end{pmatrix}$   
 $\vec{a} \cdot \vec{b} = 8$   
 $|\vec{a}| = \sqrt{14}, |\vec{b}| = \sqrt{6}$   
 $\cos \alpha = \frac{8}{\sqrt{14} \sqrt{6}} = \frac{4}{\sqrt{21}}$   
 $\alpha \approx 56.3^\circ$

